

REMARKS

Reconsideration and allowance of this subject application are respectfully requested.

Claims 1-7, 9-20, 22-40 stand rejected under 35 U.S.C. §102(e) as being unpatentable over U.S. Patent 6,574,473 to Rinne et al. This rejection is respectfully traversed.

The problem addressed in the instant application requires an understanding of two distinctions. The first is that there are two different types of radio channels including dedicated physical channels and shared physical channels. Dedicated physical channels transport information between a single mobile terminal and a core network and are not shared or used by other mobile terminals during the time they are dedicated to that single mobile terminal. In contrast, a shared physical channel may be used to support data communications with multiple mobile terminals, for example, using a multiplexing scheme such as code or time division multiplexing.

The second distinction is that there are serving radio network controllers (SRNCs) and drift radio network controllers (DRNCs). When a DRNC provides resources for a mobile terminal connection, the DRNC performs different control functions for dedicated channels and for shared physical channels. For dedicated channels, the DRNC is involved in admission control and commits DRNC resources to support the mobile terminal connection. Once the RNC radio commits resources, it is not responsible for

scheduling or other supervision of other physical channel resources for that connection.

That responsibility is typically handled by the SRNC. For shared channels, the DRNC is again involved in admission control when the connection is established to the extent that DRNC resources are needed. But the DRNC also must perform one or more additional control supervisory functions for a shared channel. This is because a shared channel is used by multiple mobile terminals, and the DRNC—not the SRNC—performs the final resource scheduling on the shared physical channel. In addition to scheduling multiple information streams for different mobile terminals onto the shared radio channel at different times using different radio resources, the DRNC may also perform rate control functions with the SRNC. For example, the DRNC requests the SRNC to slow down its data transmission in order to avoid congestion on the shared physical channel.

Shared channel communications employ last-moment resource scheduling in the DRNC. As a result, the mobile terminal typically does not know which physical channel resources will be used for its connection at each moment in time, e.g., which spreading code, which frame multiplex time, etc. Thus, the radio network must inform the mobile terminal about the specific common/shared resources that will be used to support that mobile connection at each point and time.

One way to accomplish this is to send the mobile terminal resource identification/allocation messages on a parallel-established, dedicated radio channel before the mobile is to receive the information on the shared radio channel. One example way in which the identity of physical channel resources to be used and how these

resources are to be used, (e.g., type of channel coding and coding rate), is using transport format indication (TFI) and/or transport format combination indication (TFCI) control messages. Using this non-limiting example, an SRNC determines a TFI1 for each dedicated transport channel, and a DRNC determines a TFI2 for each shared transport channel. After receiving the TFI1 control information over a dedicated physical channel, the mobile terminal knows how different dedicated transport channels are multiplexed on to the dedicated physical radio channel. The mobile is also made aware of the downlink physical channel resources that are allocated when the radio link is first setup. With this information, the mobile can receive and demodulate information transmitted over the dedicated radio channel.

On the other hand, because a shared radio channel may use one of several radio resources based on the current radio resource scheduling by the controlling RNC, it is impractical for the mobile terminal to know and check for information regarding all of the radio resources currently selected for use by the controlling RNC. The mobile terminal is informed of currently-used radio resources for the shared channel using, for example, a TFI2 control message. One TFI2 communication approach is for the DRNC to insert the TFI2 information into the user data stream to be transmitted on the dedicated radio channel. As a result, the base station transmits both the TFI1 and TFI2 on the dedicated channel over the radio interface. This approach is shown in Figure 3. But there are many drawbacks with this approach as explained in the background section of the application.

The better approach described in the application that overcomes these drawbacks is to employ a separate transport bearer between a controlling RNC and a base station to transport controlling RNC-originated control information related to how user data will be transmitted by the base station and received by the mobile station on a shared radio channel. Figure 4 illustrates a separate transport bearer (the thick-line) between a DRNC and BS2 that conveys such information. In a configuration in which there is only an SRNC and a base station, it may be appropriate or otherwise desirable to establish a separate transport bearer to carry such control information generated by the SRNC.

To establish that a claim is anticipated, the Examiner must point out where each and every limitation in the claim is found in a single prior art reference. *Scripps Clinic & Research Found. v. Genentec, Inc.*, 927 F.2d 1565 (Fed. Cir. 1991). Every limitation contained in the claims must be present in the reference, and if even one limitation is missing from the reference, then it does not anticipate the claim. *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565 (Fed. Cir. 1986). Rinne fails to satisfy this rigorous standard.

Although Rinne discloses a radio communications network that identifies both an anchor RNC (similar to a SNRC) and an active RNC (similar to a DRNC), Rinne's entire focus is on inter-RNC handover. See, for example, column 4, lines 25-35: "the present invention primarily writes to handovers between radio network controllers inside a generic radio network." Unlike the instant independent claims, Rinne makes no distinction between shared and dedicated physical radio channels. Although the

Examiner refers to columns 7 and 11 in Rinne in rejecting the claims, Rinne treats all radio channels as generic radio connections. Rinne makes no distinction between "a dedicated radio channel dedicated to a mobile unit during the communication or a shared radio channel shared by other radio units during the communication," as recited in claim 1. At column 7, lines 61-66, Rinne simply states that "radio connections are set up between the radio network controller RNC[j] and mobile station MS[α], and radio links are established between the base stations BS[a(j)...d(j)] and mobile station MS[α]."

Regarding claims 1 and 39, Rinne fails to disclose establishing between a controlling radio network controller and a base station "a first transport bearer to transport data to be transmitted on the shared radio channel" and "establishing between the CRNC and the BS a second transport bearer to transport control information originated in the CRNC relating to the first transport bearer data." Applicants do not see how messages sent between new and old radio network controllers indicating the need for a backward handover or a forward handover teach these features. Where does Rinne disclose the claimed first and transport bearers to transport data? Where does Rinne disclose the claimed second transport bearer between the CRNC and BS to transport control information that is originated by the CRNC and that relates to the first transport bearer data?

The assumption is that all radio connections are dedicated channels. The Examiner fails to identify where shared radio channels are also used to transport user data to multiple mobile terminals. Claim 24 recites similar features not found in Rinne

including that the user data is transmitted to the mobile radio on a shared radio channel, that first transport bearer is established to the base station to transport user data to be transmitted on the shared radio channel, and a second transport bearer is established to the base station to transport control information originated in the RAN node.

Claim 15 recites three distinct RAN transport bearers. The Examiner fails to identify these three bearers in Rinne. If the Examiner maintains a rejection of claim 15 based on Rinne, the Examiner is respectfully requested to identify specifically in the Rinne the following:

- a first RAN transport bearer to transport information supervised by the SRNC for transmission over a dedicated radio channel to a mobile radio unit;
- a second RAN transport bearer to transport information supervised by the DRNC for transmission over a shared radio channel to the mobile radio unit; and
- a third RAN transport bearer to transport DRNC-originated information.

Regarding claim 20, although Rinne describes computer-generated signals sent from an RNC to a base station, Applicants find no computer-generated signals in Rinne sent from the RAN to the base station that are a "frame number field including a specific frame number corresponding to a frame in a radio channel" and "a transport format field including information relating to a particular radio channel resource useable by a mobile radio unit to receive information directed to the mobile radio unit." Applicants have carefully reviewed the references to column 7, 11, 12, and 3 identified by the Examiner in the rejection of claim 20 but were unable to locate any of the quoted features. The only

message described in any of these sections referenced by the Examiner is a message indicating a need for a forward handover as described at column 11, line 38. This is not what is claimed. Moreover, the text at the bottom of column 11 that extends into column 12 refers to using spreading codes in the context of a CDMA radio network. What relevance do spread codes have to the claimed computer-generated data signal that includes the frame number field and transport number field information in claim 20? Clarification is requested.

Regarding claim 32, Rinne fails to disclose configuring a drift RNC to
establish a first transport bearer to transport the user data
connection information from the DRNC to the base station to
be sent on the shared radio channel and a second transport
bearer to transport control information related to the
connection information from the DRNC to the base station.

There certainly is no teaching of an SRNC in Rinne being configured to "establish a third transport bearer to carry connection information to be transmitted on a dedicated radio channel between the base station and the mobile radio unit," as recited in dependent claim 33.

Thus, each independent claim recites multiple features not disclosed by Rinne. In short, Rinne fails to disclose or suggest an extra transport bearer between a CRNC and a BS for transporting control information relating to how user data will be transmitted by the base station and received by the mobile station on a shared radio channel.

Many dependent claim features are also not disclosed by Rinne. For example, claims 3, 17, and 26 indicate that the control information includes scheduling

information. Applicants have reviewed the text in Rinne referenced by the Examiner and find no teaching of scheduling information relating to a shared channel. Regarding claims 4, 18, 23, and 27, Applicants have reviewed the references made by the Examiner in Rinne and find no teaching that the transport control information recited in respective independent claims "indicates information needed by the mobile radio unit to decode the data transmitted over the shared radio channel." There is certainly no teaching that such needed information includes a frame identifier, a radio channel identifier, and a indication of how different radio channels are multiplexed in the identified frame, as recited in dependent claims 5, 28, and 36. None of the referenced text in Rinne describes that the control information includes transport format information or indicator as recited in claims 6, 7, 27, 28, 37, and 38. Regarding claims 10-14 and 35, Applicants find no teaching of the claimed third transport bearer and related features.

Claims 8 and 21 stand rejected under 35 U.S.C. 103 as being unpatentable over Rinne et al. in view of U.S. Patent 6,122,310 to Ziemer et al. Ziemer fails to remedy Rinne's deficiencies of the independent claims from which claims 8 and 21 depend. Therefore, this deficiencies of this obviousness rejection need not be addressed.

The application is now in condition for allowance. An early notice to that effect is earnestly solicited.

• LIESHOUT et al.
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Respectfully submitted,

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